Slow Food®

Slow Food Foundation
for Biodiversity

Seeds According to Slow Food

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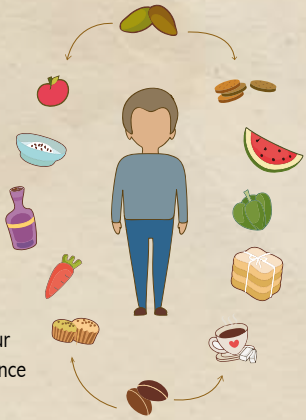
Why a Guide on Seeds?

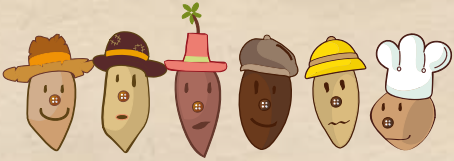


Do we ever think about the seeds that generate our food? How many times, when shopping or cooking, do we ask ourselves how products were created, who made them or bought the seeds needed to grow our fruit, vegetables, bread, pasta and even our meat, since animals are raised on plant-based diets?

Let's be honest: we hardly ever think about it. Even amongst the most discerning and curious of us, those who take care in reading labels and the nutritional properties of different products, often don't take this issue into consideration.

Even those who spend time tending to their vegetable gardens with care and passion, often don't know where the plants they grow come from, or how they were chosen and produced. They are often bought from plant nurseries and subsequently planted at home. Few are familiar with the process of producing and saving seeds at home by cultivating the plants themselves, instead of simply buying them.

The aim of this guide is to provide consumers and amateur growers with useful information on the founding element of our food: seeds.



Where Do the Seeds We Use From?

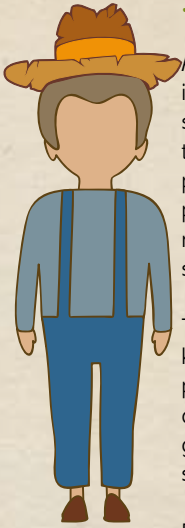
The history of seeds has very ancient roots, dating back to around 10,000 years ago when human beings abandoned hunter-gatherer lifestyles in favor of permanent settlements and started dedicating themselves to agriculture. Aside from planting, fertilizing, irrigating and harvesting, farming communities around the world have always selected and saved seeds. And shared them amongst themselves too.

Selecting and producing seeds means continuing the fertility cycle and ensuring the availability of crops for the subsequent year. Since the selection of seeds entails choosing the best fruits, the process helps to improve plant and seed varieties which, year after year, will continue to progress in terms of weight, yield and capacity to germinate... Farmers have always experimented with this practice, using their knowledge and wealth of experience for the benefit of their crops, land and local communities.

During the 1900s, with the increase in knowledge on genetic improvement, the Green Revolution in the fifties and the transformation of the agricultural sector into agro-industry in the seventies, something changed. The continuous rise of industrial agriculture and its need for uniformity, homogenization and a focus on profit, has resulted in a concentration of the species which are grown and a reduction in the number of varieties, with a terrible loss of plant biodiversity. It only takes a look at the numbers to better understand this trend: of the 80,000 edible species available for food production, only 150 are currently grown, 8 of which are sold on a global scale. This agricultural depletion inevitably coincides with a gastronomic loss, which results in a diet based on an ever-restricted number of species and varieties.

We therefore have a duty and a responsibility towards seeds: to protect and preserve them in order to guarantee richness and variety in our meals, but also to safeguard their biological and cultural heritage of diversity. Seeds of all different varieties are the present and future of life; they should be protected irrespective of cost effectiveness as they could be carriers of fundamental characteristics potentially useful in the future.

Rural Seeds



Agriculture as a human activity has existed for about 10,000 years. This is what we mean when we say that something has been done "since the start" in the agricultural world. Throughout the years, rural communities the world over have been selecting, saving, multiplying and developing seeds, all tasks predominantly carried out by women, according to principles of wisdom. They have thereby helped to increase yield, taste, nutritional value and other seed characteristics in harmony with the resources and diversity of their land.

The work of farmers has always been based on complex agricultural knowledge passed on and perfected over generations and seasons. The principle of free-exchange amongst communities has been a long-standing value based on cooperation and reciprocity. Farmers often exchanged equal amounts of seeds amongst themselves, thus contributing to strengthening the conservation of biodiversity.

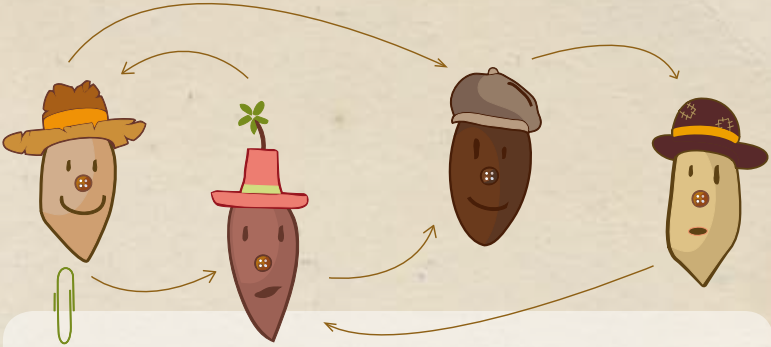
For farmers, seeds are much more than an instrument of production: they are a language, a series of rituals or gastronomic heritage, and an expression of a culture that has consolidated itself over time, deeply rooted in the land.

They are also the founding element of food sovereignty and a guarantee of food security. It is important to give farmers the right to freely select, produce, save, exchange or sell the seeds they grow. The genetic diversity of crops is of vital importance in managing environmental changes and unpredictable climate, while guaranteeing more stability to production and protecting the natural environment.

There's more: seeds and their diversity are an integral part of many cultures, with a number of foods having a sacred role. They are also an element with which people identify themselves, and a source of joy and economic development.

An Example

According to international agreements, food sovereignty is a right and traditional knowledge is an ensemble of values that to this day are inadequately protected by legislation. In many parts of the world, rural communities are subject to injustices that affect their right to produce their own food and select their own seeds. One of the most striking cases concerns farming communities in Latin America, where small farms have been bought and grouped together into big businesses, sometimes reaching over 100,000 hectares of land, dedicated solely to the cultivation of genetically modified soy to be exported and used in the production of animal feed for the livestock industry. South American farmers have been forced away from their land, sometimes with bloodshed, and relegated to favelas, where communities have fallen apart and cultures, not only agricultural ones, have been irreparably lost.



The Law of Seeds

Over the years, which rules concerning seeds have governed the practices of those who tended to the land? What are the governing principles in the realm of traditional seeds? This is what seeds would have to say about themselves if they could give themselves a charter:

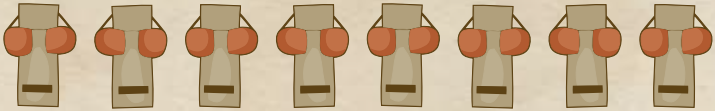
Farmers' seeds are alive, dynamic, eternally youthful and the result of a progressive adaptation to the characteristics of specific areas. The founding principles of the "Law of Seeds" are:

- Diversity: only a system that is rich and diverse is able to ensure that everyone has the possibility to have a good diet and face the changes linked to the living world;
- Freedom: rural communities have a right and a duty to safeguard ancient crop varieties and create new ones by crossing them with the ones they already own;
- The possibility of a future evolution of agriculture and humanity: no future is possible without the conservation of the past.

The Beauty of Imperfection

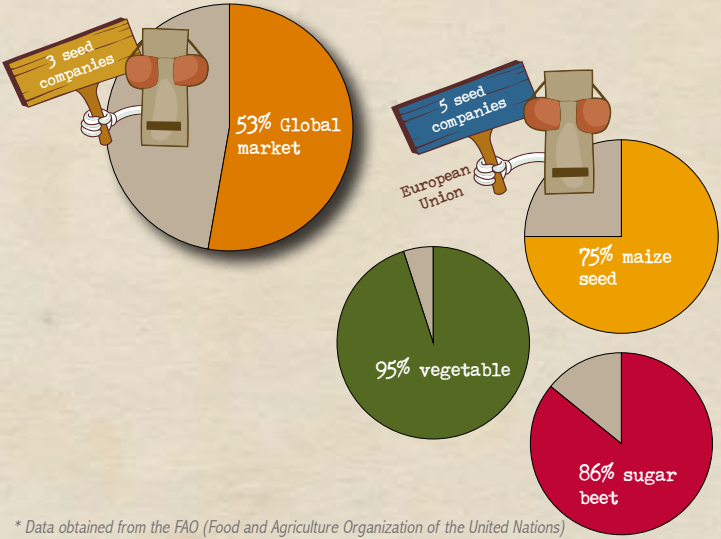
Why buy plants or commercial seeds when you can choose something different or even produce your own? They will never be perfect super-seeds of course (out of a hundred seeds, only around half will germinate), but for a small vegetable patch it is worth following this road, giving priority to quality in terms of taste and variety in what you grow, rather than the guarantee of uniformity and optimal yield that industrial seed packets offer. By following the instructions in this guide, you can learn how to produce and save your own seeds. You might have a few losses, as not all seeds will germinate into a plant, but you will have the great satisfaction of putting products on the table, about which you know their entire biography.

"Keep on sowing your seed, for you never know which will grow - perhaps it all will."
Albert Einstein

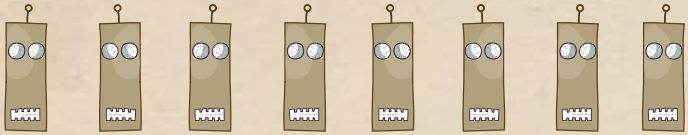


What Do We Mean By Industrial Seeds?

Over time, industrial seeds have replaced those produced by farmers and are the main varieties available on the market. In the 1970s there were over 7,000 seed companies, none of which reached the global market. Today, the biggest three (Monsanto, Pioneer Dupont and Syngenta) hold 53% of the global market and the biggest 10 companies hold 76%*. In the European Union, 75% of the maize seed market is in the hands of the first five companies operating in the field, with equally high numbers in the sugar beet market, (86%) and the overall vegetable market (95%)**.

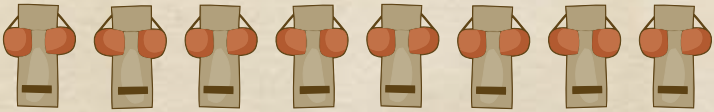


** Data obtained from the FAO (Food and Agriculture Organization of the United Nations)*
** *Data obtained from the Greens/EFA Group in the European Parliament*



These companies are also leaders in the production of fertilizers, pesticides and herbicides. There is an unbreakable link between those who produce seeds and those who make weed-killers or insecticides. An infamous example is the RoundUp® herbicide, produced by Monsanto, and the RoundUp® seeds developed to tolerate this product.

From the beginning of the seventies, a new wave of legislation began to develop that slowly managed to overthrow a barrier that our grandparents believed to be insurmountable: in other words the possibility of creating "monopolies" over food. From the eighties onwards, large companies took the opportunity (which was made possible thanks to a series of American court rulings in 1980/5) to patent living organisms and, therefore, to produce seeds. This effectively subjected the agricultural world to the rules of the industry, while transforming a vital common resource into a widely consumed good controlled by the industry itself. It is a change that has gone somewhat unnoticed but which is truly momentous and destroying all of the principles that were stated in what we called the "Law of Seeds".

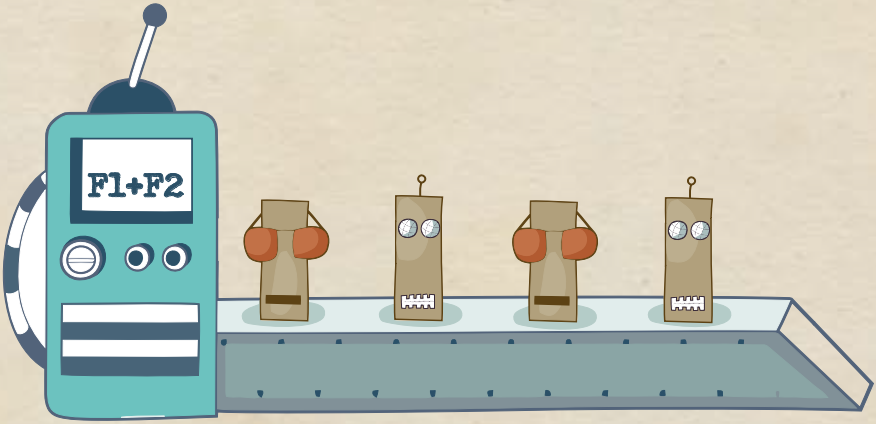


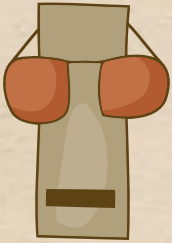
Survival of the Fittest

Industrial seeds, supported by inadequate laws, are slowly imposing themselves as the only options available on the market. They all possess criteria, such as innovation, distinction, uniformity and stability, which are required by industrial patents and promoted by the market, but which farmers' seeds do not possess.

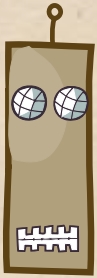
At the same time, they damage the rights to:

- Diversity, because they focus on few species, and a small number of varieties for each species;
- Freedom, because laws concerning seed patents don't take the skills of traditional farmers into account, making it ever more difficult to save, exchange and sell specific varieties. Today, many people believe it is illegal to buy from or exchange seeds with farmers. This isn't always true, but the fact that some think it is says a lot about the extent to which traditional farming has been marginalized on the global market;
- The possibility of a future evolution of agriculture, because the potential spread of technology for the production of sterile seeds would quash any hope of a future free from the hold of the laws of the market.





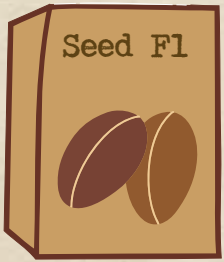
F1

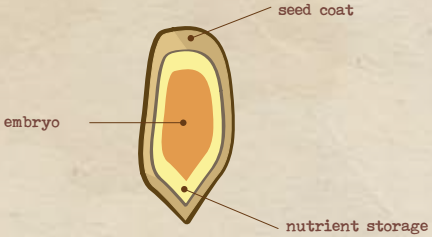


F2

Distinctive Features: Hybrid

Knowing if we are buying a commercial hybrid is very simple: look out for the abbreviations F1 or F2 on the packet. These seeds will give you a good yield, but they won't carry any culture linked to a specific environment and are the result of modern techniques of enhancement. They will be standard, anonymous products, the same around the globe. Although they will be very productive in optimal conditions, if you try and obtain seeds from their fruits, they will give you a disappointing result. This is because so-called "hybrid vigor" (or heterosis) only works for the first generation: you will therefore have to buy the same packet the next year. If, instead, you prefer a form of agriculture based on diversity, want to contribute to future crops with your own seeds and help preserve the biodiversity of your land, then use traditional or heirloom varieties.

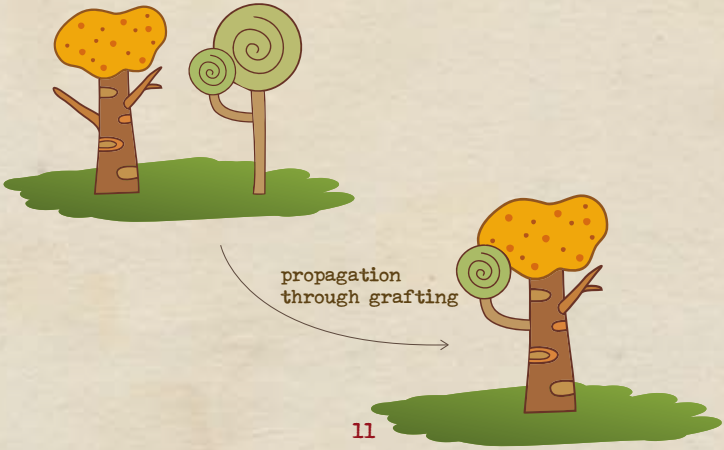


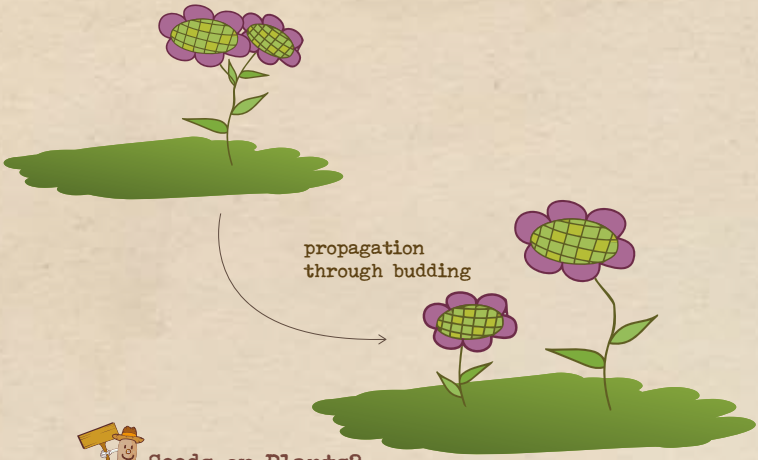


The Anatomy of a Seed

Very simply put, seeds are composed of three parts, from the inner to outer layer: the embryo, which makes up the structure of the future plant; the nutrient storage, full of substances such as carbohydrates, fats and proteins (in variable amounts depending on the species); and the seed coat, which protects the seeds' vital areas from the external environment and guarantees a period of dormancy before germination.

Even though we speak generally of "seeds" to refer to the whole ensemble of plant reproductive material, plant reproduction occurs in different ways. In the case of grains and vegetable plants, it occurs through the seed (it is common for the latter to be bought from plant nurseries and subsequently planted), while propagation for perennial fruit trees and flower plants occurs either through grafting or budding.





Seeds or Plants?

Whether you are an amateur grower or have a vegetable garden on your balcony, you can replace the use of store-bought plants. However, as very few varieties are available on the market, for traditional plants you will have to rely on seeds. Ask your local farmers: they will be happy to share! Alternatively, try asking at specialized shops or browsing related websites.

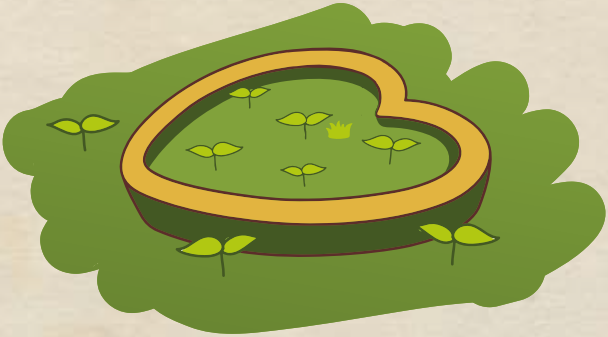
"Don't judge each day by the harvest you reap but by the seeds that you plant."
Robert Louis Stevenson

Seeds and Land

Local varieties share a deep connection with the land where they are grown and produced, and the type of climate, soil and abundance or scarcity of water which characterize it. Every variety evolves with the land and for this reason they are well adapted to the different blends of climate, soil and culture.

The link between seeds and land has a strong cultural and economic relevance. It is crucial to local products, which are an expression of cultural identity for communities and can become a source of income for farmers. However, the promotion of local productions, closely linked to the land, is a speculative strategy confronted with the homogenization of industrial production. Compared to industrial varieties, local ones are generally less productive but are far more adapted to cultivation in marginal conditions.

In your vegetable garden it can be fun to experiment and try to grow products from other geographical areas: seeds have always travelled and it is important that they continue to do so. However, you must be aware that different varieties will only maintain their original characteristics over time if reproduced in the place where they come from. Cultivated elsewhere, they will develop other characteristics which can be just as interesting…or not…that's the fun of experimenting, is it not?



Over time, by moving away from their place of origin, seeds are affected by a process of genetic drift, in other words a gradual and potentially irreversible move away from the characteristics of their original ecotype. Contrary to this drift, genetic variability is a process linked to natural pollination and reproduction, causing of a series of imperceptible genetic modifications which are at the same time useful in adapting to new land.

Globe Trotters Ahead of Their Time

Seeds are deeply rooted in their land, but historically they have always travelled far, stowed on explorers' ships or carried in bags by merchants going along trade routes. Tomatoes, beans, potatoes and peppers came from the Americas; aubergines and citrus fruits from the East and watermelons from Africa… Over time and away from their land of origin, they adapted and developed new characteristics in response to the different areas where they were sown.

A few examples... In 1614, in the countryside nearby the city of Concepciòn in Chile, Spanish missionary Alfonso Ovalle discovered white strawberry fruits, which from then on were classified as *Fragaria Chiloensis*. In 1712, military engineer, expert botanist and cartographer, François Frezier, who was in the country working on his coastal maps, took some of the plants and brought them over to Europe as a gift to Louis XIV, who had a passion for strawberries. The journey lasted six months and only five plants survived the trek. Strawberries as we know them today (big and red) originated from Brest, France, in the 1700s and are a mix between Fragraria Virginiana (a wild strawberry from North America which arrived in Europe in the 1600s) and the Bianca Chiloensis. Due to their particular taste, similar to pineapple, they are classified with the name *Fragaria X Ananassa* ('ananassa' meaning pineapple). Prior to the 1700s, only small woodland strawberries (*Fragaria Vesca*) could be found in Europe.

A few examples... It is said that in 1796 Napoleon presented the families of Perinaldo, a small town in Liguria in north western Italy, with plants of a particular variety of purple artichokes which were grown in nearby Provence. The characteristics of the land were similar and it wasn't hard for the purple artichoke from Provence to adapt to its new land. This was the birth of the Perinaldo Artichoke: the only variety of artichoke cultivated in Liguria, with no spines or choke, harvested later in the year and with a taste similar to cardoons.

Amateur Growers: Which Seeds to Use?

Your vegetable garden shouldn't only offer a good yield, it should also become increasingly self sufficient by producing the seeds for the following seasons.

Rules to follow to make a good choice

Choose traditional or heirloom seeds, in other words those varieties born out of natural pollination and which have been around for at least 50 years. Where possible, choose local seeds that have already adapted to your area. Ask your acquaintances, since often the most interesting varieties are passed on from father to son, or find a plant nursery, agricultural institute, university or research centre. They will be able to provide you with a small batch of seeds to use in your own garden. Amongst the many benefits, these seeds will allow you to save your own for the next year if you are willing to do it yourself, starting from the fruits that the plant generates.

If, instead, you prefer to grow varieties from areas other than your own, or which have only recently appeared on the market, focus on varieties of seeds that have been produced through natural pollination, which was the standard process before the rise of hybrids. They will have more variability and produce seeds which you can save and sow the next year. These are also difficult to find, so you will have to rely, again, on alternative sources.

Use certified organic seeds, available on specialist websites and in health food shops, where you can choose seeds from producers who are exclusively organic.

Beware of abbreviations! F1 or F2 indicates hybrid seeds produced by a handful of corporations and sold by many suppliers. They are more expensive and it is unadvisable to use their seeds for the following year as they do not maintain the same characteristics as the original plant, in terms of its fruits and yield. The first generation guarantees an optimal yield, but is quantity ultimately what you want, when compared to the value of traditional products?

Read the information listed on the packet carefully. This will tell you how the seeds were made, if they were treated with fungicide sprays or other chemical products, what their qualities are, how to grow them, what the harvesting year is and when they expire. The fresher the seed, the higher its capacity to germinate!

Packets don't tell you everything! If you have the chance, talk to local farmers and ask them about the qualities and defects of the seeds you intend on buying.

Choose variety and sow many different types. Monotony is an enemy to your vegetable garden, your food and your health. Diversity helps to produce in a healthier manner.
Store your seeds in optimal conditions; these organisms are always active, even in their dormant phase. They must be kept in a dark space, away from humidity and temperatures that are either too hot or cold. They are best stored in paper (upon which you can write the name of the variety) and closed in sealed containers, ideally made of tin or, alternatively, glass (but remember to keep it them in the dark).

Seeds and Bees

Vegetable gardens or fields rich in fruit trees, vegetable plants and flowers are also the best habitats for bees, butterflies, hornets and bumble-bees. The more varied and healthy their environment, the more they are able to fulfil their fundamental duty of pollination, guaranteeing the planet's fertility. To the contrary, industrial seeds that have been treated with fertilizers and pesticides are putting the survival of pollinators, in particular bees, at serious risk. Amongst the most common and damaging products are neonicotinoids which are used in the treatment of certain crops, such as maize and sugar beet, to protect them from parasites. In 2013, the European Union officially recognized that these products are damaging for bees: they have now been partially banned from the market for two years (from 2013 to 2015). This type of synthesized molecule is also present in many products we use at home in dealing with invasions of ants or protecting our roses from parasites. It is therefore necessary to be careful of what we employ at home. When overly used, herbicides and drying agents sprayed alongside roads or used to keep our gardens "tidy" are harmful to the earth, insects and our health!

Thinking Like a Lawyer: Patents and Privatisation

When we talk about seeds, we must think both like a farmer and like a lawyer, in that we often have to deal with concepts far from the agricultural context, such as “royalty”, “intellectual property rights”, “privatization” and “registration”. Although these concepts can seem uninteresting at first, we should all be familiar with them to better understand where we are, where we are going and where we want to go.

The agricultural industry aims to impose its own vision, applying the concepts of intellectual property and privatization, typical of the industry, to nature. This is like thinking of seeds or plant varieties exactly like the latest mobile phone or technology. Seeds, even the newest varieties, are not someone’s invention: they are the result of over 10,000 years of care and wisdom of those who have worked the land.

The industry is effectively putting its hands on the first and fundamental link of the food chain, exercising a legitimized control over humanity, a phenomenon which we call by another name: monopoly over food.

BIO PIRACY The commercial development of naturally occurring biological materials, such as plant substances or genetic cell lines, by a technologically advanced country or organization without fair compensation to the peoples or nations in whose territory the materials were originally discovered.

Bio Pirates and Outlaw Farmers

If the principles of the industry ultimately take hold – imposing the use of only a few patented varieties and determining the marginalization and loss of all seeds – farmers, amateur growers and consumers will lose many fundamental liberties:

- The freedom to use seeds according to their own needs;
- The freedom to produce new varieties from pre-existing ones;
- The freedom to exchange and sell protected varieties of seeds;
- The freedom to reproduce, save and sow seeds from their own land;
- The freedom to choose what to grow, in other words: food sovereignty;
- The freedom to choose what to eat;
- Freedom from privatization;
- Freedom from genetic contamination and GMOs.

Thinking Like a Lawyer: Registration

Privatization, when badly managed or in the wrong forms (such as patents), causes the control of the food we eat to be concentrated in the hands of a few and contributes to the loss of agricultural biodiversity. Registration of a variety, on the other hand, entails knowing, describing and protecting it. A practice promoted in the International Treaty on Plant Genetic Resources for Food and Agriculture, approved by the FAO in 2001, registration must be regarded as an instrument to protect the culture and origin of seeds. It is not a way to limit the freedoms of farmers, but an instrument to defend them.

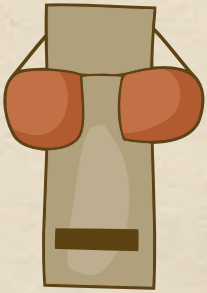
Contrary to privatization, on a European level registration is generally cheaper or entirely free (depending on the country), public and available online. Registers can be regional, national and international, and are managed by different authorities. They must contain information on the morphological and biometric characteristics of a variety, as well as on the area of first-known origin and the dispersal of the variety itself, in order to affirm its link to a specific place.

If you think you have a variety to be registered, get in contact with your local or regional agriculture authority.

Registering is Better

- Registration should be promoted, but what isn't registered should not be outlawed;
- Anyone, usually a farmer or a scientific institution, can put forward a traditional variety for registration and thereby become its guardian;
- A 'guardian' farmer therefore takes on the task of periodically sowing the seeds in order to guarantee their renewal and maintain the capacity to germinate;
- By registering a variety, farmers take a vital step towards the conservation of agricultural biodiversity.

registration



patent

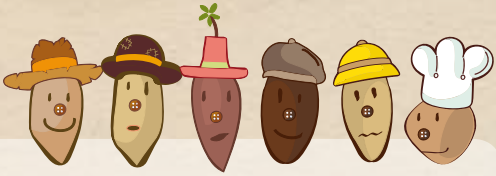
Farmers with White Coats: Even Seeds Get Sick

Even seeds can get sick and be affected by viruses, fungi and bacteria. The health of a seed is therefore very important and has much at stake. It is not always possible to defend seeds from viruses that come from the field, but starting with healthy seeds is already an important step.

One of the benefits of commercial seeds invoked by the industry is that they are free from viruses, fungi and bacteria. Seeds coming from large companies undergo strict tests to ensure they are free from disease. From a scientific point of view these seeds are certainly safe, but are we really sure that the industry is the only way to guarantee healthy seeds?

Small producers have always produced their own seeds: for themselves, to exchange and to sell. They possess a wealth of knowledge when it comes to selecting plants and fruits from which to obtain seeds, choosing only the strongest and healthiest, with no signs of disease which farmers are very quick to recognize.

At a legislative level, self-certification and traceability should be put in place, asking farmers to take on the important responsibility of guaranteeing the seeds they want to sell or exchange, to the extent that is possible through visual inspection. This avoids weighing farmers down with bureaucracy and the costs of certification currently in place. Modern technologies should and could be put to the service of farmers on a larger number of species and traditional varieties to ensure their health.



Useful Information

Nobody is asking you to become a seed "doctor", however there are a few useful things to know:

Farmers are able to determine, as much as is visibly possible, the health of their seeds and they should therefore have the right and the duty to self-certify them. Always talk to your farmer when you purchase seeds for your vegetable garden;

Local varieties have lower dispersal rates compared to industrial crops, so even in situations of risk, damage will be limited. Furthermore, they also have a low potential for diseases and viruses;

Seeds are alive and delicate. When you buy or exchange them you are entitled to receive adequate information on them.

Amateur Growers:
Healthy Plants = Healthy Seeds = Healthy Plants

If you want to select and save your seeds, it is useful to follow some guidelines.
Let's start with a bean, which is fairly easy to handle:

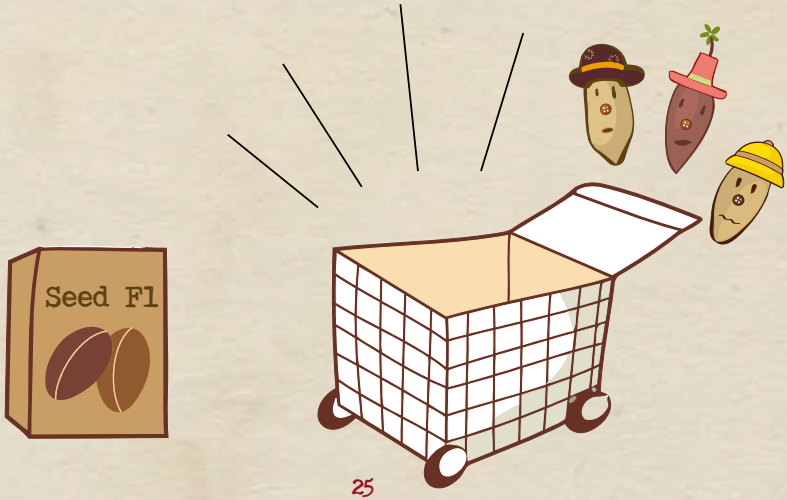
- Choose only the healthiest and most prolific plants: healthy plants = healthy seeds = healthy plants for the following season;
- Once the beans have dried, you can obtain the seed. Choose only the best, smoothest and wholesome seeds with a size corresponding to their variety;
- Leave them to rest on a plate for a day, to ensure they are completely dry;
- Put them in a paper bag, label it and store in a fresh, dry and dark place.

Tell Me What Seeds You Eat and I Will Tell You Who You Are

An old Italian nursery rhyme goes as follows: “To make a tree, you need a seed, to make a seed, you need the fruit”. This was a way of explaining the link between a wooden table and a seed sown in the ground, to children…There is an even stronger connection between the vegetable, fruit or plate of rice that ends up on our table, and the seed from which they were generated.

It is true that a responsible consumer has many duties to fulfil before tucking in. For example, taking care that the food they consume is made without harming the environment and the welfare of animals, as well as ensuring that production did not pollute or use too much water… Understanding how this is linked with seeds from which tomatoes or salad are grown is a further important step.

So, if you are proudly enjoying your own home-grown vegetables from commercial or F1 and F2 hybrid seeds, you must be aware that those vegetables are a product of the industry.



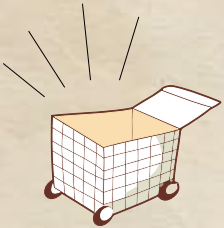
Responsible Consumers: Seeds are the Starting Point, Think About It!

True awareness about what is on your plate begins with the first link in the food chain: the seed that creates the plant, flower and finally the fruit.

• Choose vegetable varieties whose names are indicative of a precise geographical location (such as the Albenga Asparagus, Lucca Bean and Torre Guaceto Fiaschetto Tomato) as their seeds are produced and saved within a specific community;

• Choose vegetables, grains and pulses from traditional varieties;

• Vegetables and fruits from commercial seeds are the most widely available on the market: Piccadilly tomatoes, Fuego chillies… they are often given fancy names which are ultimately unrelated to any specific area or tradition.



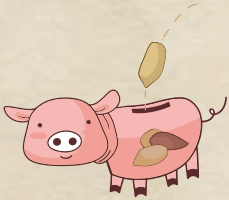
Being Your Own Detective: Where to Find the Right Seeds

Finding the right seeds can appear to be a complicated affair, but knowing where to look can help:

- Ask your farmer for a small quantity of seeds to sow in your own garden;
- Attend a seed exchange event or look for online communities (such as Grow the Planet) which work in much the same way;
- Many small companies sell their products online: this will make it easier to find those who produce organically;
- Ask for seeds at in situ seed banks. Botanical gardens, universities, scientific and agricultural institutes and farmers' associations often have seed banks and projects in place for the conservation of local varieties;
- Browse lists of registered regional varieties: every seed record contains information on those who grow them;
- Go to shops specializing in plants and flowers. By carefully reading the labels it should be easier to identify industrial hybrids;
- Health food shops will often have a range of organic seeds on offer.

Germoplasm Banks

Ex situ seed banks, such as the Millennium Seed Bank of the Royal Botanic Gardens in the UK or the Svalbard Global Seed Vault in Norway, also known as Germoplasm banks, are distinct from in situ ones. Their main role is to preserve biological diversity and guarantee food security, while storing an adequate quantity of a variety of edible species to be used in the event of a biological catastrophe or the destruction of food stocks.



Your Questions and Our Responses

Right from the start of this booklet, we have encouraged readers to put themselves in the shoes of farmers, consumers, legislators and doctors. It's normal! Seeds are small but complex and to truly get to grips with them it is necessary to look through different lenses. It is normal to still have many questions left. Here we will try to answer a few to satisfy your curiosity…

Are there laws on seeds? What do they say and who will be making future decisions?

EU legislation on the subject is currently made up of 12 directives. Created in the 60s and 70s, it had a double aim: to increase crop productivity thanks to the legal guarantees of the distribution system of high-yielding varieties (through certification and official registration) and the protection of buyers from potential scams. In a bid to update and simplify these directives, in 2013 the European Commission put forward a regulatory proposal on production and supply to the market. This was rejected in 2014 by the EU Parliament, who asked the Commission to reformulate a proposal to take individual Member States into greater account and truly benefit producers.

Discussions are now underway on the new regulation proposal, what is Slow Food's position?

Slow Food is calling for a new law on seeds which combines the production and availability of high quality seeds with the effective protection of biodiversity. The new law should pay particular attention to traditional seeds and their link to land and traditional knowledge, allowing the exchange of varieties amongst small-scale producers and between producers and enthusiasts, while regulating their sale based on adequate and non-penalizing requisites. The regulation should foster the work of those who cultivate diversity and should offer opportunities in support of farmers who are guardians of registered varieties, in recognition of the role they play in the conservation and production of agricultural biodiversity. Traditional and heirloom varieties should be promoted, while at the same time guaranteeing the necessary tests and checks for consumer safety. In particular, Slow Food is calling for a legal framework of public policies that:

- Respect international agreements ratified by the European Union, with particular regard for the International Treaty on Plant Genetic Resources for Food and Agriculture of the FAO;
- Safeguard diversity through the voluntary and free registration of seed varieties;
- Guarantee the safety and traceability of traditional seeds on the market, by introducing a series of requirements based on different methods of agricultural and seed production;
- Do not limit the freedom to exchange traditional seeds and encourage a sense of responsibility among those who handle seeds.

Large companies are responsible for the production of both hybrid and genetically modified seeds. Which GMOs can be found in Europe? Where is it legal to grow them?

There are currently 50 types of legally authorized GMOs available for sale in the EU. Two of these have been approved for cultivation within the EU: MON810 transgenic maize, approved in 1998, and the Amflora potato produced by BASF, which was approved in 2010 for use in the paper industry but which has not been grown since 2011. The remaining

GMOs have been approved in the form of imports, with most destined for use by the animal feed industry. According to EU legislation, GMOs cannot be grown or imported without official authorization guaranteeing the protection of human and animal health and the environment. Current legislation offers Member States the possibility to decide whether they want to ban GMOs in their countries. The clear opposition of European consumers towards these crops has determined an extremely low production of GMOs in Europe (accounting for only 0.1% of global production), which remains limited to the MON810 maize. Most of the GMO production takes place in Spain, which counts for 80% of the European total. All other countries, aside from the Czech Republic, Portugal, Romania, Poland and Slovakia, have in one way or another put a ban in place (even causing disagreements with the EU) and stopped the cultivation of crops by invoking the safeguard clause (which allows Member States to limit or ban the use or sale of GMOs in their country if they believe these represent a risk to human health or the environment).

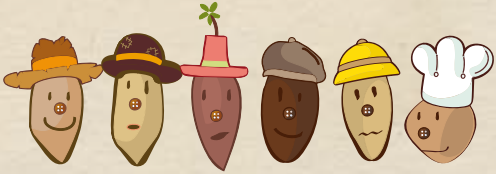
Why is a genetically modified crop a threat to a field sown with conventional, organic or biodynamic seeds?

If a field sown with traditional seeds is in proximity to a GMO field, it would only take a gust of wind or the work of bees themselves for the non-transgenic field to be contaminated. Genes multiply with the organisms that contain them and it is effectively impossible to control the dispersal of transgenic material.

Environmental risk is low when genetic modifications concern bacteria cultivated in a confined and controlled atmosphere (as is common in the pharmaceutical industry, where bacteria are transformed for the production of specific molecules) but the problem is much bigger in the agricultural realm. If GMOs are sown into a field in open air, they will be directly - and in large quantities - dispersed into the natural environment without any possibility of containment.

Is it illegal under current legislation for my vegetable garden to contain traditional varieties of seeds, which have either been received as a gift or bought from a farmer?

Laws currently regulate the sale of seeds, including those for conservation and those which are subject to specific rules which take the developments of in situ conservation and the sustainable use of plant resources for agriculture into account. Farmers can sell saved seeds but they must abide by the conditions and duties imposed by law (registration and quantity for sale). The exchange or gifting of seeds is not regulated, therefore growing vegetables from traditional seeds that have been freely given by farmers is not illegal.



To Find Out More

The European Commission

The European Commission's website offers information on current EU legislation, the revision of EU laws and on the working group of experts on seed legislation and propagation material: http://bit.ly/1ZOOp8t

The 2013 regulation proposal on the production and market availability of plant reproductive material, rejected by the Parliament: http://bit.ly/1WxMxvn

The European Parliament

Ivan Mammana (2014) "Concentration of market power in the EU seed sector" http://bit.ly/1qBMIME*

Seed Diversity Means Food Security, video: http://bit.ly/WkT3vg*

FAO

International Treaty on Plant Genetic Resources for Food and Agriculture, which aims to recognize the great contribution of farmers to the diversity of the crops that feed the world:
www.planttreaty.org/

UPOV

The International Union for the Protection of New Plant Varieties is an NGO whose mission is to provide a system for the effective protection of plant varieties:
http://www.upov.int/portal/index.html.en

Civil Society Organizations

Manifesto on the Future of Seeds: http://bit.ly/1RVKMZT
www.arche-noah.at
La Via Campesina: Our Seeds, Our Future: http://bit.ly/1T8Ppz2
www.ifoam.org/en/what-we-do/seed
www.eu-seedlaw.net/

**commissioned by the Parliamentary Group of the Greens/European Free Alliance in the European Parliament*

Notes

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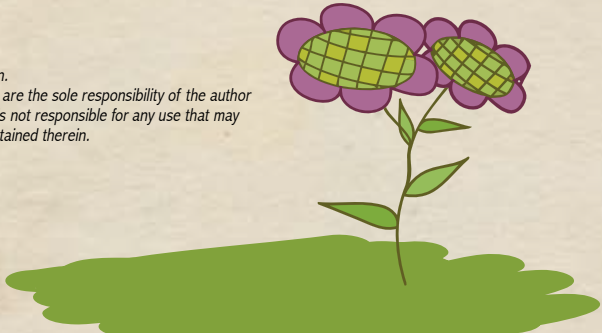

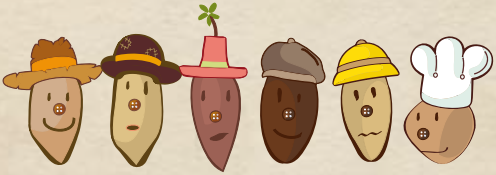

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